



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 :  H01L 23/498		A3	(11) International Publication Number: <b>WO 00/31797</b>  (43) International Publication Date: 2 June 2000 (02.06.00)
<p>(21) International Application Number: PCT/IL99/00633</p> <p>(22) International Filing Date: 25 November 1999 (25.11.99)</p> <p>(30) Priority Data: 127256 25 November 1998 (25.11.98) IL</p> <p>(71) Applicant (for all designated States except US): MICRO COMPONENTS LTD. [IL/IL]; 20179 D.N. Misgav (IL).</p> <p>(72) Inventors; and</p> <p>(75) Inventors/Applicants (for US only): NEFTIN, Shimon [IL/IL]; Eshkol Street 813/20, 10200 Kiryat Shmona (IL). MIRSKY, Uri [IL/IL]; Hagalil Street 13, 36001 Nofit (IL).</p> <p>(74) Agent: REINHOLD COHN AND PARTNERS; P.O.B. 4060, 61040 Tel Aviv (IL).</p>		<p>(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 23 November 2000 (23.11.00)</p>	
<p>(54) Title: DEVICE FOR ELECTRONIC PACKAGING, PIN JIG FIXTURE</p> <p>(57) Abstract</p> <p>A device (1, 21, 28, 36, 37, 86, 103, 121, 128) for electronic packaging, the device including a discrete solid body having a pair of opposing generally parallel major surfaces, the solid body having a body portion of a porous valve metal oxide based material with a pair of exterior surfaces respectively constituting portions of the major surfaces and extending inward from one major surface towards the other major surface, the body portion having one or more electrically insulated valve metal conductive traces of from about 10 <math>\mu</math>m to about 400 <math>\mu</math>m thickness in a direction from one major surface to the other major surface embedded therein, one or more of said traces having a trace portion divergently extending inward from an exterior surface constituting a portion of one of said major surfaces. A pin jig fixture (221, 232) for use with an electrical power source for porous anodization of a valve metal blank having a surface, the pin jig fixture comprising a bed of pins each having a leading end surface for intimate juxtaposition against the surface for masking a corresponding area thereof, one or more of said leading end surfaces being directly connected to the electrical power source for electrically connecting the electrical power source to the surface on intimate juxtaposition thereagainst.</p>			

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IL 99/00633

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01L23/498

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 262 226 A (YOSHIDA YOSHIHIRO) 16 November 1993 (1993-11-16)	1-5,9, 10,15, 16,18, 19,21-27
A	the whole document ---	12-14
Y	ANONYMOUS: "HIGH SPEED METAL CARRIER PACKAGING SYSTEM USING THIN FILM INTERCONNECTION TECHNIQUES" IBM TECHNICAL DISCLOSURE BULLETIN, US, IBM CORP. NEW YORK, vol. 23, no. 1, 1 June 1980 (1980-06-01), pages 374-377, XP002072461 ISSN: 0018-8689 the whole document ---	1-5,9, 10,15, 16,18, 19,21-27
		-/-

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

## \* Special categories of cited documents :

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\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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\*&\* document member of the same patent family

Date of the actual completion of the international search

23 February 2000

Date of mailing of the international search report

29.09.00

## Name and mailing address of the ISA

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## INTERNATIONAL SEARCH REPORT

International Application No
PCT/IL 99/00633

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 015, no. 242 (P-1217), 21 June 1991 (1991-06-21) & JP 03 075604 A (MITSUNOBU MIYAGI; OTHERS: 02), 29 March 1991 (1991-03-29) abstract ---	1-27
A	DATABASE WPI Section Ch, Week 7916 Derwent Publications Ltd., London, GB; Class L03, AN 79-30532B XP002072462 & JP 54 032279 A (CHO LSI GIJUTSU K), 9 March 1979 (1979-03-09) abstract ---	1-27
A	EP 0 335 291 A (HOECHST CERAM TEC AG) 4 October 1989 (1989-10-04) the whole document ---	1-27
A	FR 2 466 103 A (LEROUZIC JEAN) 27 March 1981 (1981-03-27) the whole document ---	1-27
A	FR 2 459 557 A (LEROUZIX JEAN) 9 January 1981 (1981-01-09) the whole document ---	1-27
A	US 2 305 990 A (C.O. PREST) 22 December 1942 (1942-12-22) the whole document ---	1-27
P,X	WO 98 53499 A (NEFTIN SHIMON ; MIRSKY URI (IL); MICRO COMPONENTS LTD (IL)) 26 November 1998 (1998-11-26) the whole document -----	1-27

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IL 99/00633

### Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-27

#### Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

**1. Claims: 1-27**

A substrate consisting of a porous oxidised metal body with metal vias, its use as an interposer and the corresponding manufacturing process.

**2. Claims: 28-30**

A pin jig fixture and a process of selectively anodising a metal surface using a pin jig fixture.

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

Intern: \_\_\_\_\_ Application No

PCT/IL 99/00633

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